



US005507615A

United States Patent [19]

Uno

[11] Patent Number: 5,507,615
[45] Date of Patent: Apr. 16, 1996

[54] DEVICE FOR PILING BUNDLES OF SHEETS

[76] Inventor: **Tadao Uno**, 1-84, Matsugaoka 1-chome, Chigasaki-shi, Kanagawa-ken, Japan

[21] Appl. No.: 274,364

[22] Filed: Jul. 13, 1994

Related U.S. Application Data

[63] Continuation of Ser. No. 991,967, Dec. 17, 1992, abandoned.

[30] Foreign Application Priority Data

Dec. 26, 1991 [JP] Japan 3-359652

[51] Int. Cl.⁶ B65G 57/081

[52] U.S. Cl. 414/788.3; 53/399; 198/431; 414/790.3

[58] Field of Search 198/418.1, 431, 198/436, 457, 468.1; 414/790.3, 788.3, 790.9, 791.1, 794.2, 794.7, 926; 53/399, 587

[56] References Cited

U.S. PATENT DOCUMENTS

2,769,378 11/1956 Jochem 414/926 X

| | | | |
|-----------|---------|----------------------|-------------|
| 3,054,516 | 9/1962 | Joa | 414/794.2 X |
| 4,249,844 | 2/1981 | Lampe et al. | 414/794.2 X |
| 4,283,902 | 8/1981 | Giori | 53/399 |
| 4,483,124 | 11/1984 | Ohba et al. | 53/587 X |
| 4,576,536 | 3/1986 | Benuzzi | 198/457 X |
| 4,944,138 | 7/1990 | Avivola et al. | 414/794.7 X |
| 5,012,932 | 5/1991 | Omura et al. | 53/587 X |

FOREIGN PATENT DOCUMENTS

2240078 7/1991 United Kingdom 198/418.1

Primary Examiner—William E. Terrell

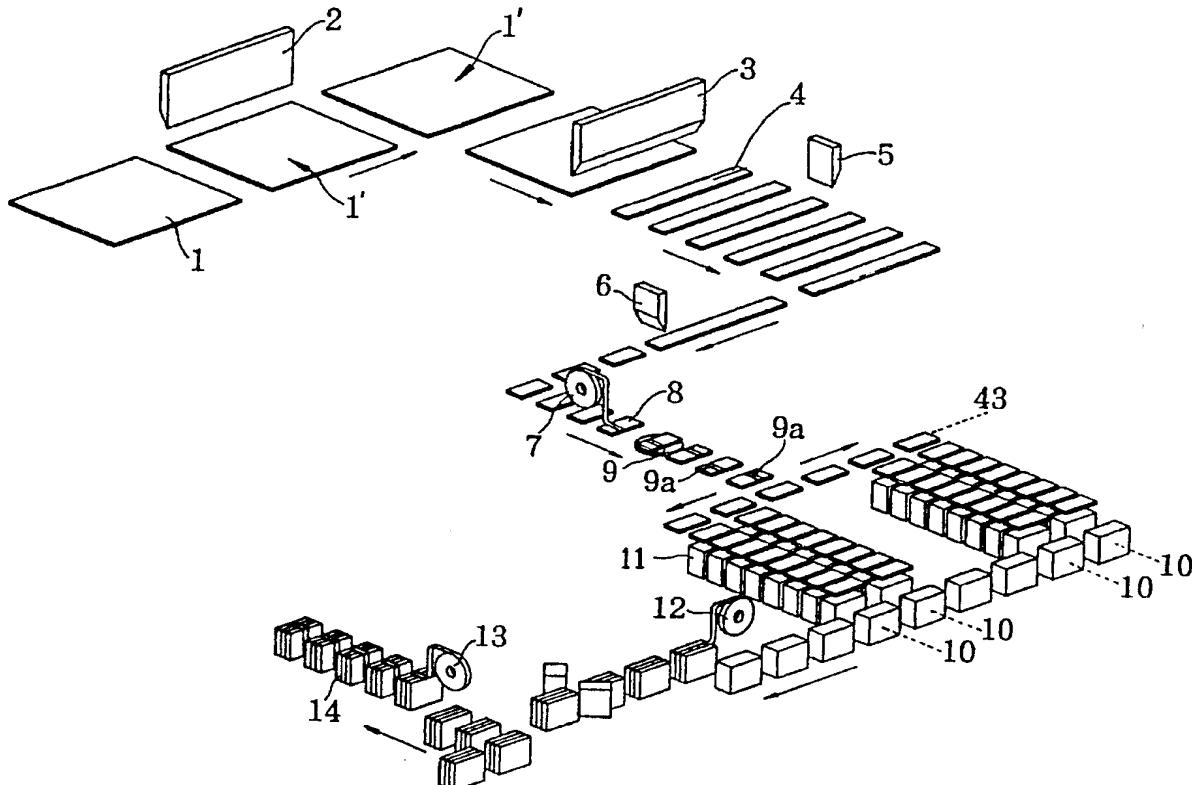
Assistant Examiner—Janice Krizek

Attorney, Agent, or Firm—Wenderoth, Lind & Ponack

[57] ABSTRACT

A plurality of sheet-bundle piling lanes are disposed in perpendicular relation with respect to a common sheet-bundle feed lane for gradually feeding sheet-bundles. At a communicating portion between the sheet-bundle feed lane and each sheet-bundle piling lane, a sheet-bundle take-in lever for taking the sheet-bundles from the former lane to the latter lane, is disposed. Blocks of bundles of sheet that are piled up are formed at each sheet-bundle piling lane.

14 Claims, 5 Drawing Sheets





US005476361A

United States Patent [19] Uno

[11] Patent Number: 5,476,361
[45] Date of Patent: Dec. 19, 1995

[54] DEVICE FOR PILING BUNDLES OF SHEETS

[76] Inventor: Tadao Uno, 1-84, Matsugaoka
1-chome, Chigasaki-shi, Kanagawa-ken,
Japan

[21] Appl. No.: 169,981

[22] Filed: Dec. 16, 1993

Related U.S. Application Data

[62] Division of Ser. No. 991,967, Dec. 17, 1992, abandoned.

[30] Foreign Application Priority Data

Dec. 26, 1991 [JP] Japan 3-359652

[51] Int. Cl.⁶ B65G 57/06

[52] U.S. Cl. 414/790.3; 198/431; 414/794.2;
414/794.7; 414/926

[58] Field of Search 198/418.1, 431,
198/436, 457, 468.1; 414/790.3, 791.1,
794.2, 794.7, 926, 790.9

[56]

References Cited

U.S. PATENT DOCUMENTS

| | | |
|-----------|---------|----------------------------|
| 2,769,378 | 11/1956 | Jochem . |
| 3,054,516 | 9/1962 | Joa . |
| 4,249,844 | 2/1981 | Lampe et al . |
| 4,944,138 | 7/1990 | Aiuola et al. 53/540 |

Primary Examiner—Michael S. Huppert

Assistant Examiner—Janice L. Krizek

Attorney, Agent, or Firm—Wenderoth, Lind & Ponack

[57]

ABSTRACT

A plurality of sheet-bundle piling lanes are disposed in perpendicular relation with respect to a common sheet-bundle feed lane for gradually feeding sheet-bundles. At a communicating portion between the sheet-bundle feed lane and each sheet-bundle piling lane, a sheet-bundle take-in lever, for taking the sheet-bundles from the former lane to the latter lane, is disposed. Blocks of bundles of sheets that are piled up are formed at each sheet-bundle piling lane.

2 Claims, 5 Drawing Sheets

